What Is Claimed Is:

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A satellite constellation comprising:

a plurality of satellites, each of said satellites having an RF ground link for communicating with a ground station and an optical link for communication with at least one of the plurality of satellites;

each of said satellites having a reconfigurable optical transmitter for sending and receiving data streams, each reconfigurable optical transmitter having a first optical carrier associated therewith and a reconfigurable optical receiver;

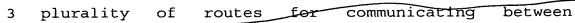
said plurality of satellites arranged to
have a first subset of satellites, said first
satellite configured to communicate;

said plurality of satellites arranged to have a second subset of satellites having at least one different satellite than that of said first subset, said second subset of satellites are configured to communicate.

1 2. A satellite constellation as recited 2 in claim 1 wherein each of said plurality of 3 satellites comprises a communications table.

3. A satellite constellation as recited in claim 2 wherein said communications table has





4 satellites in said first subset.

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A satellite constellation as recited in claim 1 wherein said reconfigurable transmitter comprises an array of laser diodes.

5. A satellite constellation as recited in claim 1 wherein said optical transmitter is tunable to generate a plurality of wavelengths.

or of

6. A satellite constellation as recited in claim 1 wherein said reconfigurable receiver is one from the group consisting of a Fabri-Perot filter, a wavelength division multiplexer, and a fiber grating-based optical switch.

7. A satellite constellation as recited in claim 1 wherein said satellites are in low earth orbit.

1 8. A satellite constellation as recited 2 in claim 1 wherein said satellites are in medium 3 earth orbit.

9. A satellite constellation as recited in claim 1 wherein said first and second subsets are aligned with a landmass.





1 10. A satellite constellation as recited

2 in claim 1 wherein said subset comprises seven

3 satellites using three optical carriers.

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1 λ . A global communications system

2 comprising:

a plurality of satellites spaced about the

4 earth;

first subset of said plurality forming a

6 local area network over a landmass, said subset

7 having a first plurality of optical carriers assigned

8 thereto for intercommunication;

9 said first subset having a second plurality

10 of optical carriers \ assigned thereto for

11 communicating with other satellites outside of said

12 first subset.

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12. A global communications system as

recited in claim 11 wherein each of said plurality of

3 satellites comprises a communications table.

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13. A global communications system as recited in claim 11 wherein said communications table has plurality of paths for each path for

4 communication between of said first subset.

1 (2) 14. A global communications system as

2 recited in claim 11 wherein each of said satellites

- a reconfigurable transmitter 3 comprises and reconfigurable receiver. 4 communications system global 1 recited in claim 11 whereir said reconfigurable 2 transmitter comprises an array of laser diodes. 3 communications qlobal system 1 recited in claim 11 wherein said optical transmitter 2 is typable to generate a plurality of wavelengths. 3 A method of communicating within 1 satellite communications comprising the steps of: 2 deploying a plurality of satellites; 3 grouping a first subset of the plurality of 4 satellites into a first local area network; 5 forming a plurality of routes between the 6 satellites in the first local area network; and 7 8 assigning an optical carrier for each 9 Youte. 18. A method as recited in claim 17 1 further comprising the steps of forming a second 2
- 5 local area network and the second local area network

local area network by grouping a second subset of the

plurality of satellites and interconnecting the first

6 to form a wide area network.

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A method as recited in claim 17 1 19. wherein the step of assigning an optical carrier 2 comprises the step of obtaining the optical carrier 3 route from a respective optical wavelength 4 selector and connection table. 5

recited claim method as in 17 1 wherein the step of assigning comprises the step of 2 reasing the optical carriers. 3

